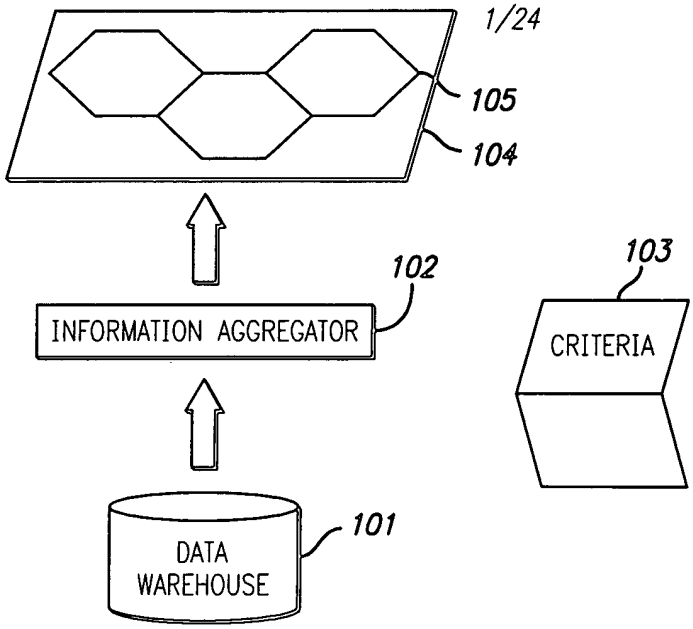

105
104
102
INFORMATION AGGREGATOR
103
CRITERIA
DATA WAREHOUSE
101

FIG. 1A

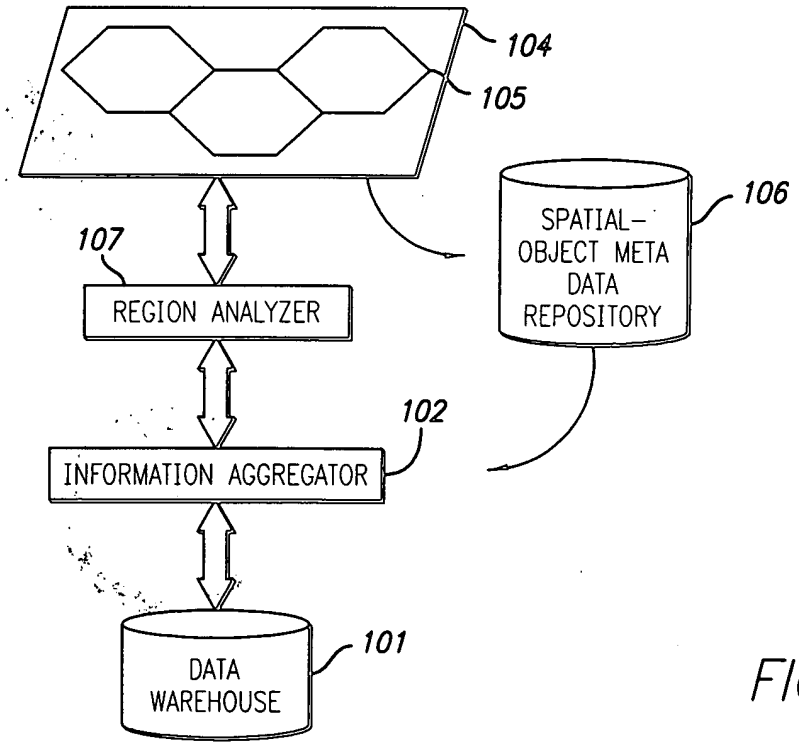

104
105
106
SPATIAL-OBJECT META DATA REPOSITORY
107
REGION ANALYZER
102
INFORMATION AGGREGATOR
DATA WAREHOUSE
101

FIG. 1B

TITLE: SPATIAL INTELLIGENCE SYSTEM AND METHOD
INVENTORS: LI-WEN CHEN AND VICTOR LUU
SERIAL NO.: 10/017,701

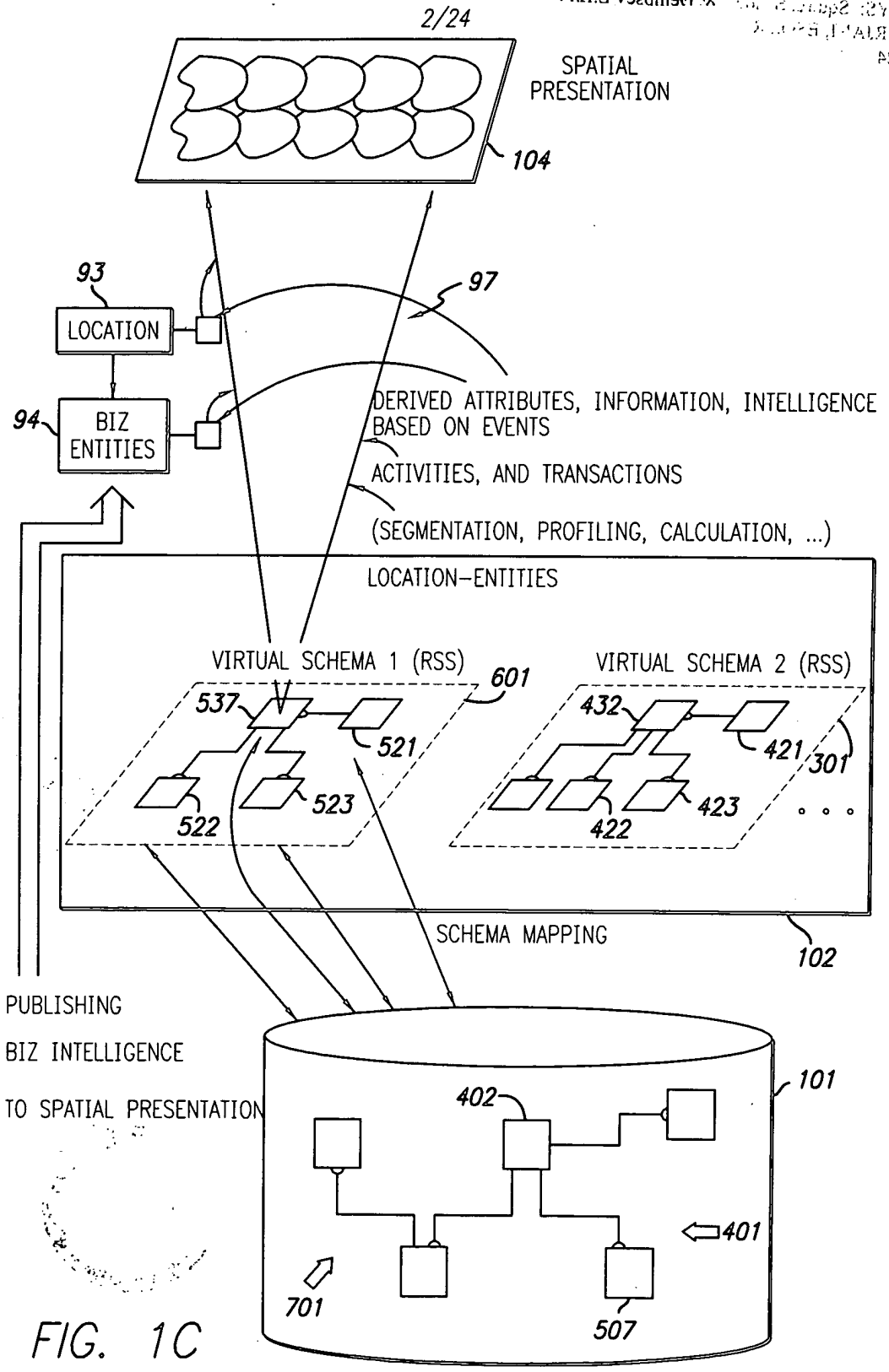


FIG. 1C

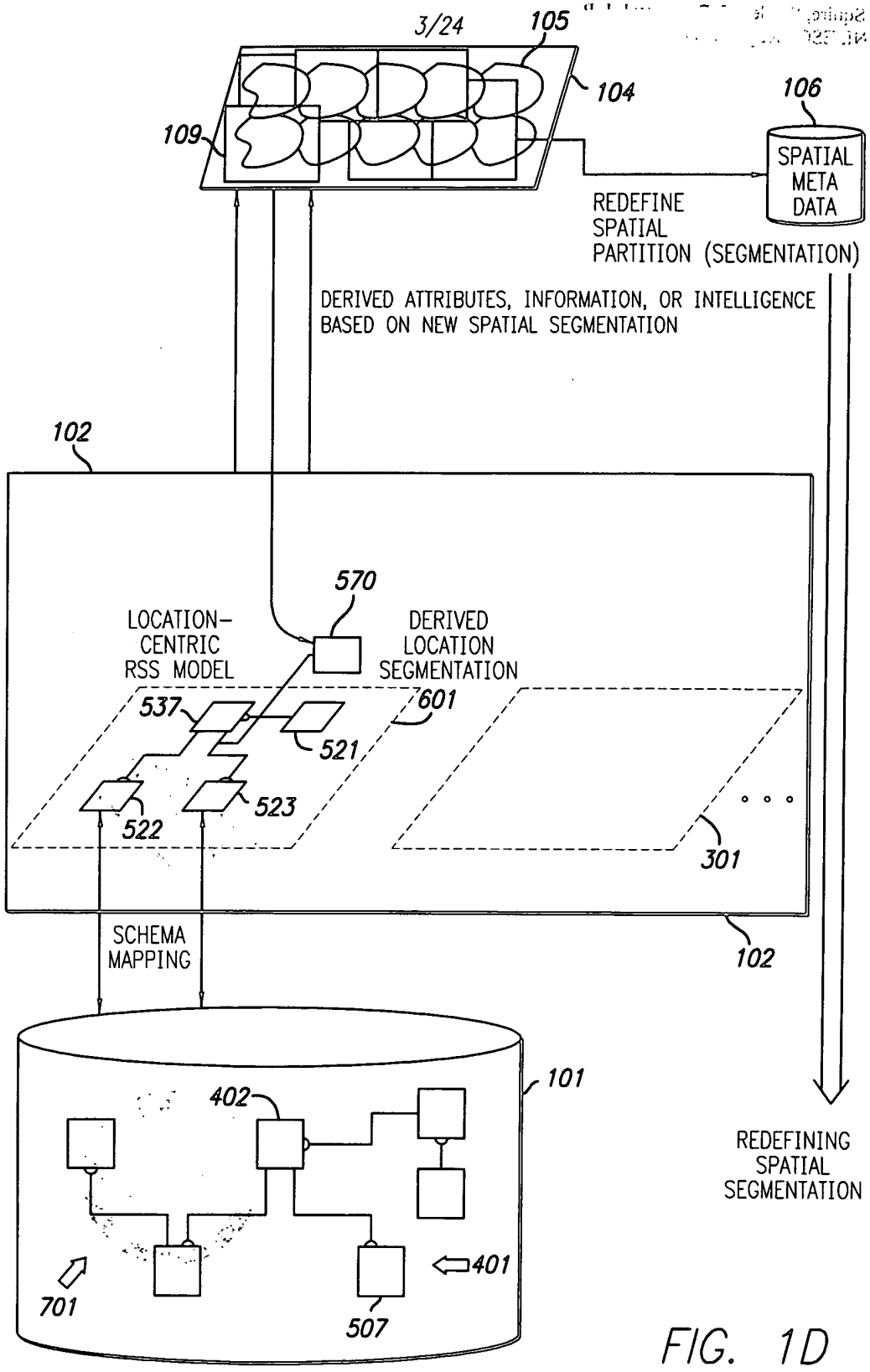

105
104
106
109
SPATIAL META DATA
REDEFINE SPATIAL PARTITION (SEGMENTATION)
DERIVED ATTRIBUTES, INFORMATION, OR INTELLIGENCE BASED ON NEW SPATIAL SEGMENTATION
102
570
LOCATION-CENTRIC RSS MODEL
DERIVED LOCATION SEGMENTATION
537
601
521
522
523
301
102
SCHEMA MAPPING
101
402
401
701
507
REDEFINING SPATIAL SEGMENTATION

FIG. 1D

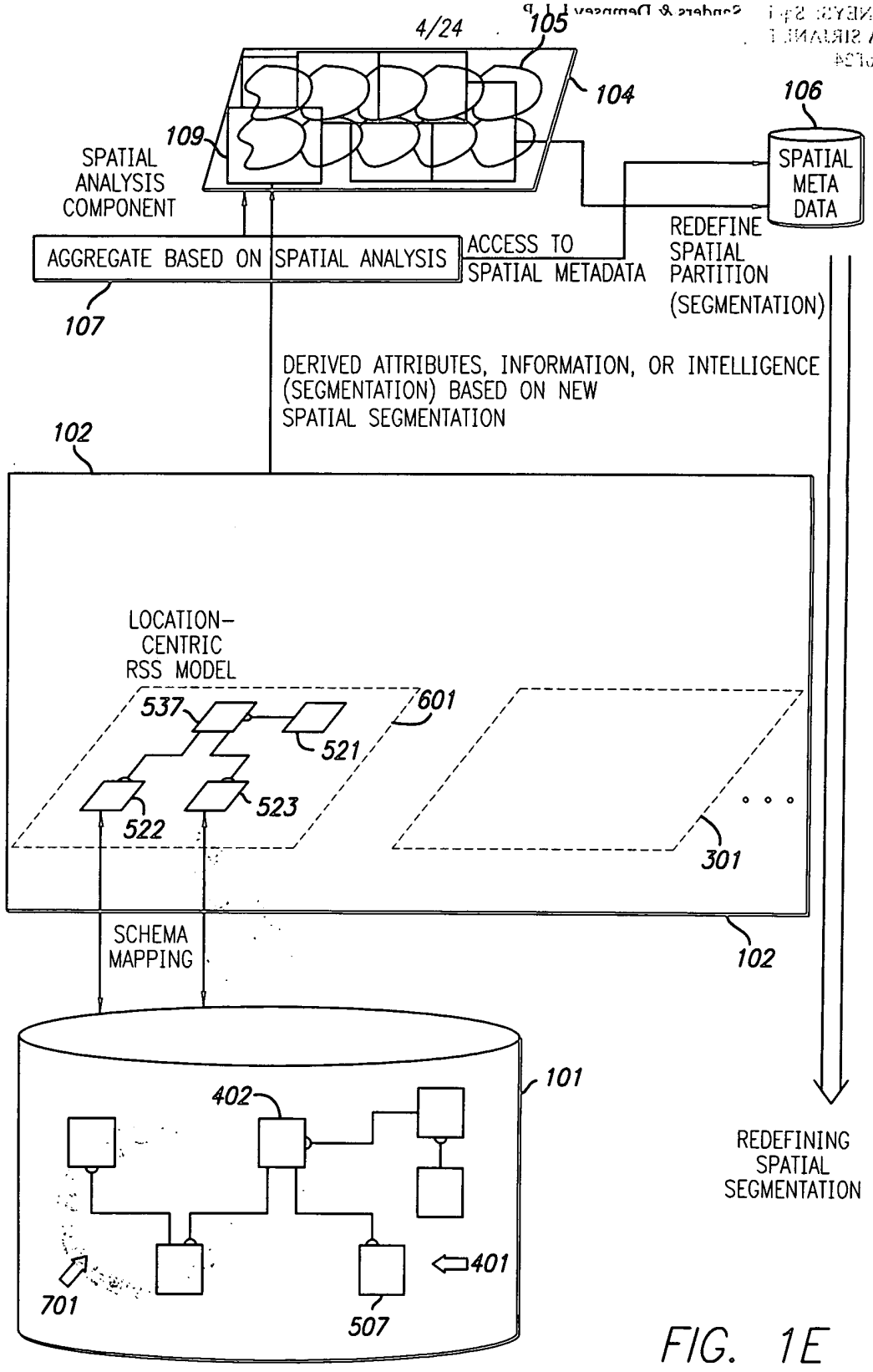

4/24
105
104
106
109
SPATIAL ANALYSIS COMPONENT
SPATIAL META DATA
AGGREGATE BASED ON SPATIAL ANALYSIS
ACCESS TO SPATIAL METADATA
REDEFINE SPATIAL PARTITION (SEGMENTATION)
107
DERIVED ATTRIBUTES, INFORMATION, OR INTELLIGENCE (SEGMENTATION) BASED ON NEW SPATIAL SEGMENTATION
102
LOCATION-CENTRIC RSS MODEL
537
601
521
522
523
301
SCHEMA MAPPING
102
101
402
401
701
507
REDEFINING SPATIAL SEGMENTATION

FIG. 1E

TITLE: SPATIAL INTELLIGENCE SYSTEM AND METHOD
INVENTORS: LI-WEN CHEN AND VICTOR LUU
SERIAL NO.: 10/017,701

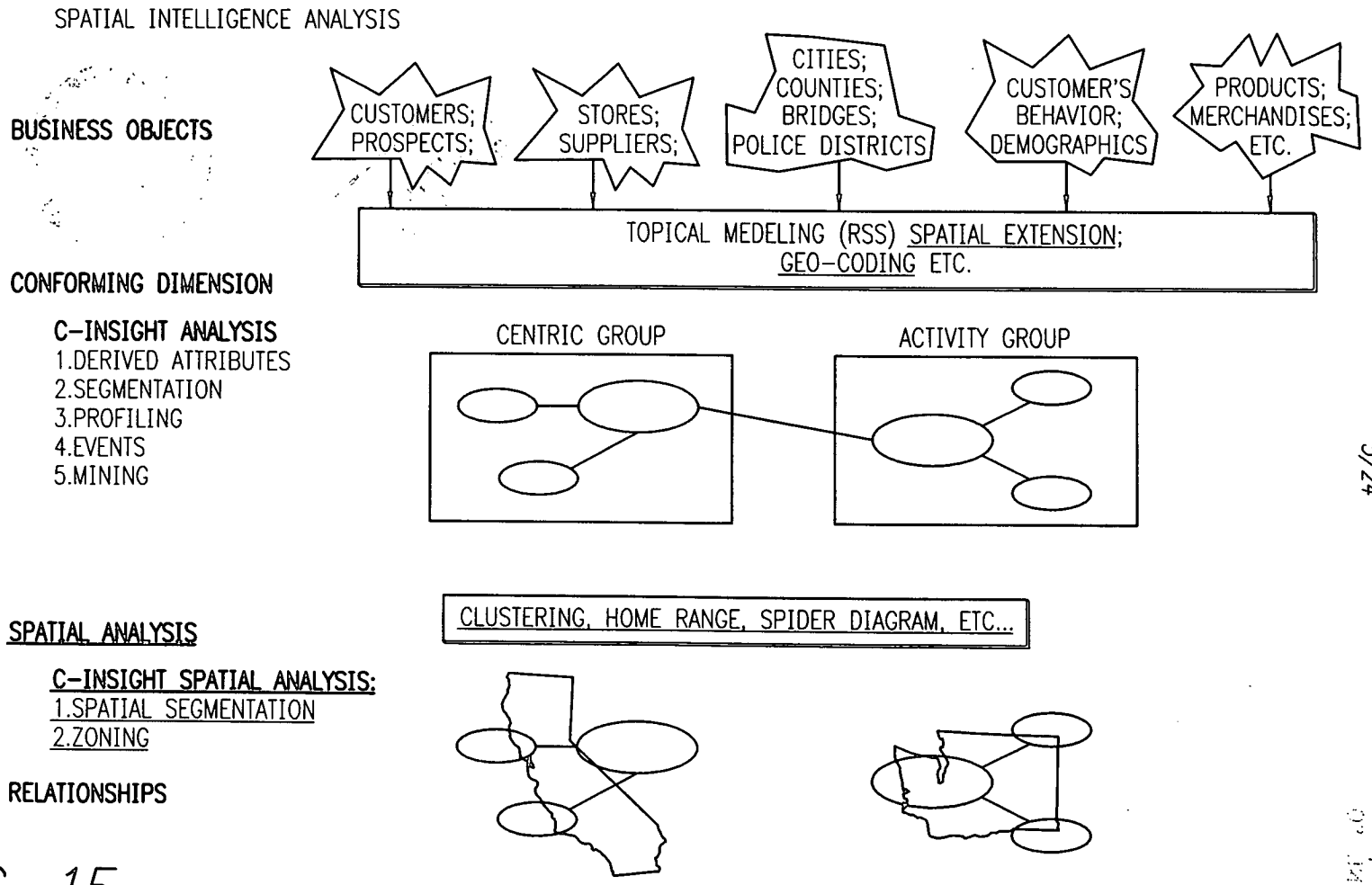


FIG. 1F

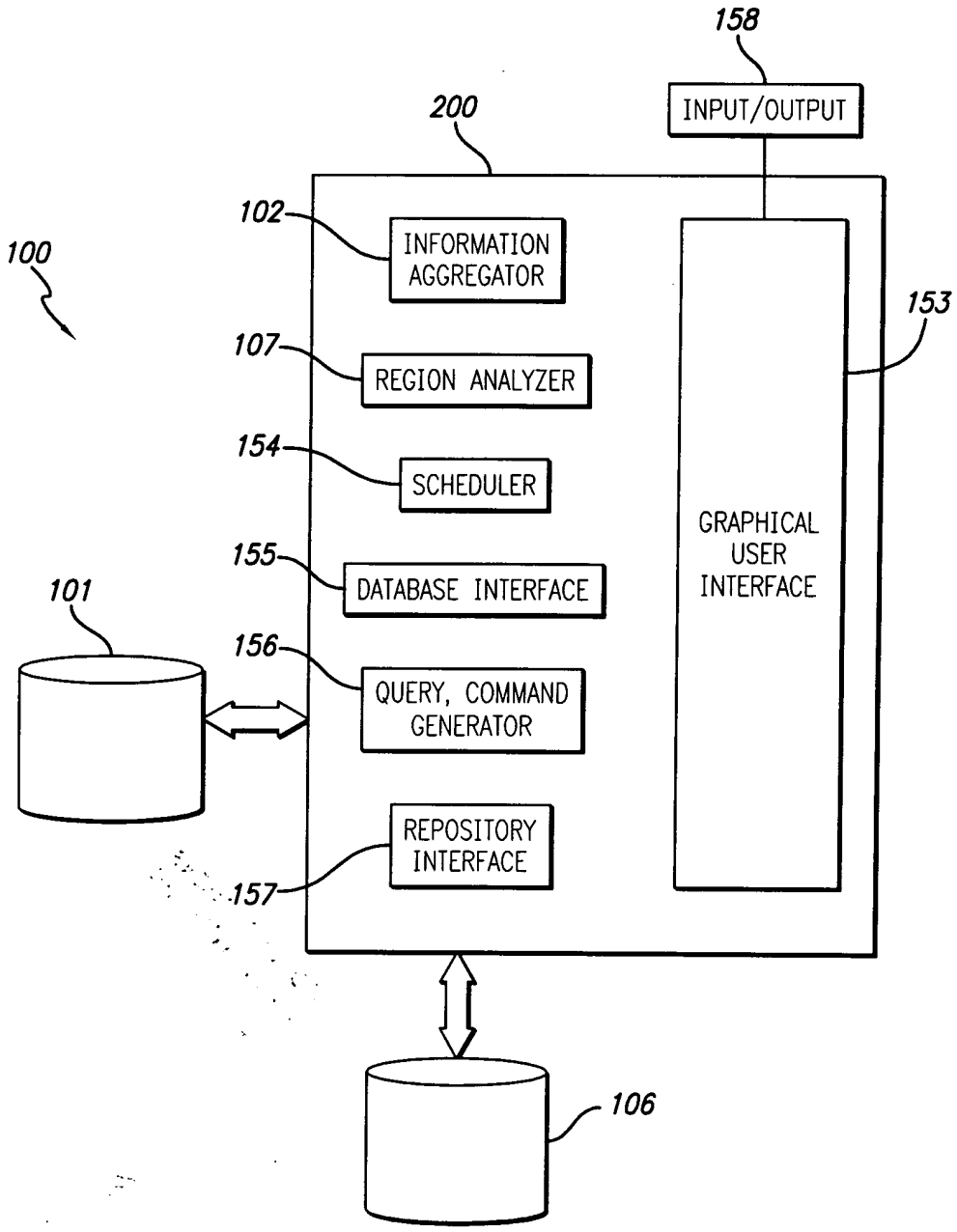

158
INPUT/OUTPUT
200
102
INFORMATION AGGREGATOR
100
153
107
REGION ANALYZER
154
SCHEDULER
GRAPHICAL USER INTERFACE
155
DATABASE INTERFACE
101
156
QUERY, COMMAND GENERATOR
REPOSITORY INTERFACE
157
106

FIG. 2A

TITLE: SPATIAL INTELLIGENCE SYSTEM AND METHOD
INVENTORS: LI-WEN CHEN AND VICTOR LUU
SERIAL NO.: 10/017,701

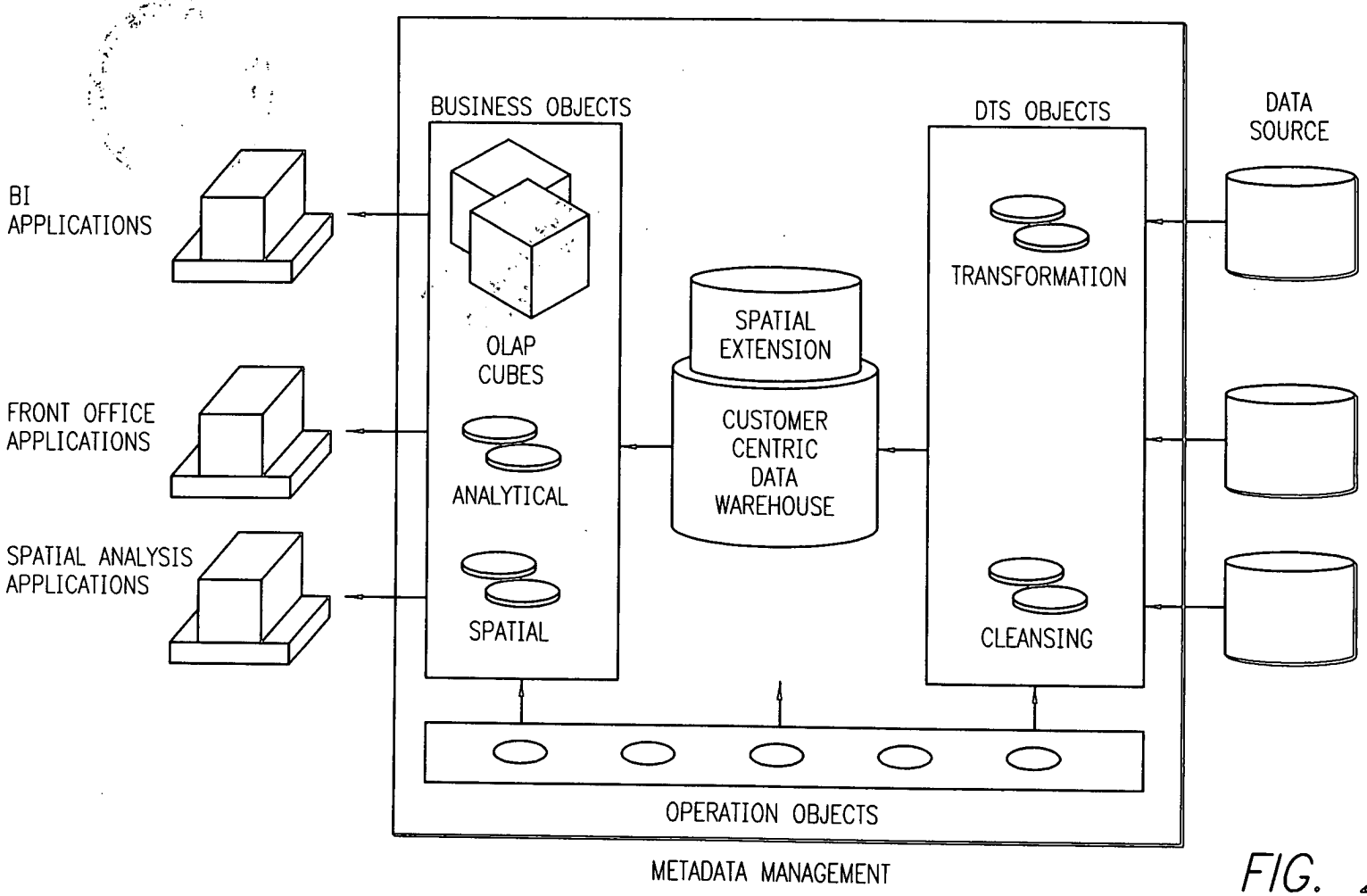


FIG. 2B

7/24

TITLE: SPATIAL INTELLIGENCE SYSTEM AND METHOD
INVENTORS: LI-WEN CHEN AND VICTOR LUU
SERIAL NO.: 10/017,701

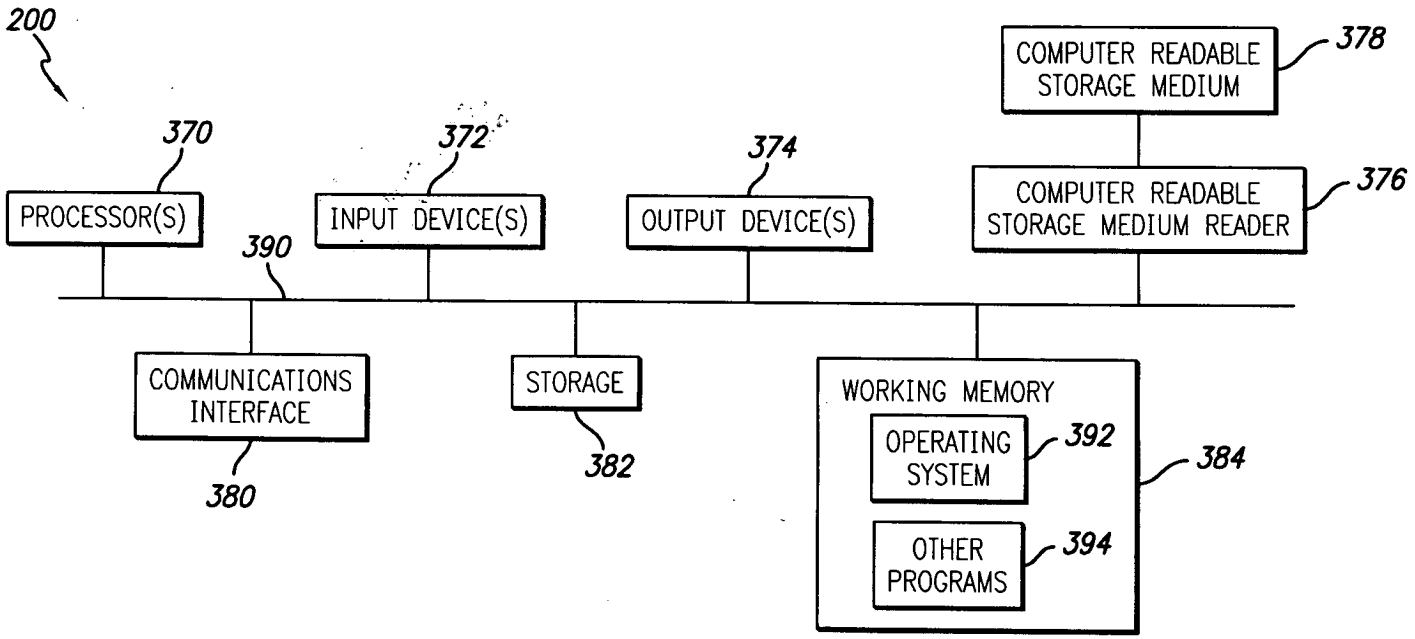


FIG. 3

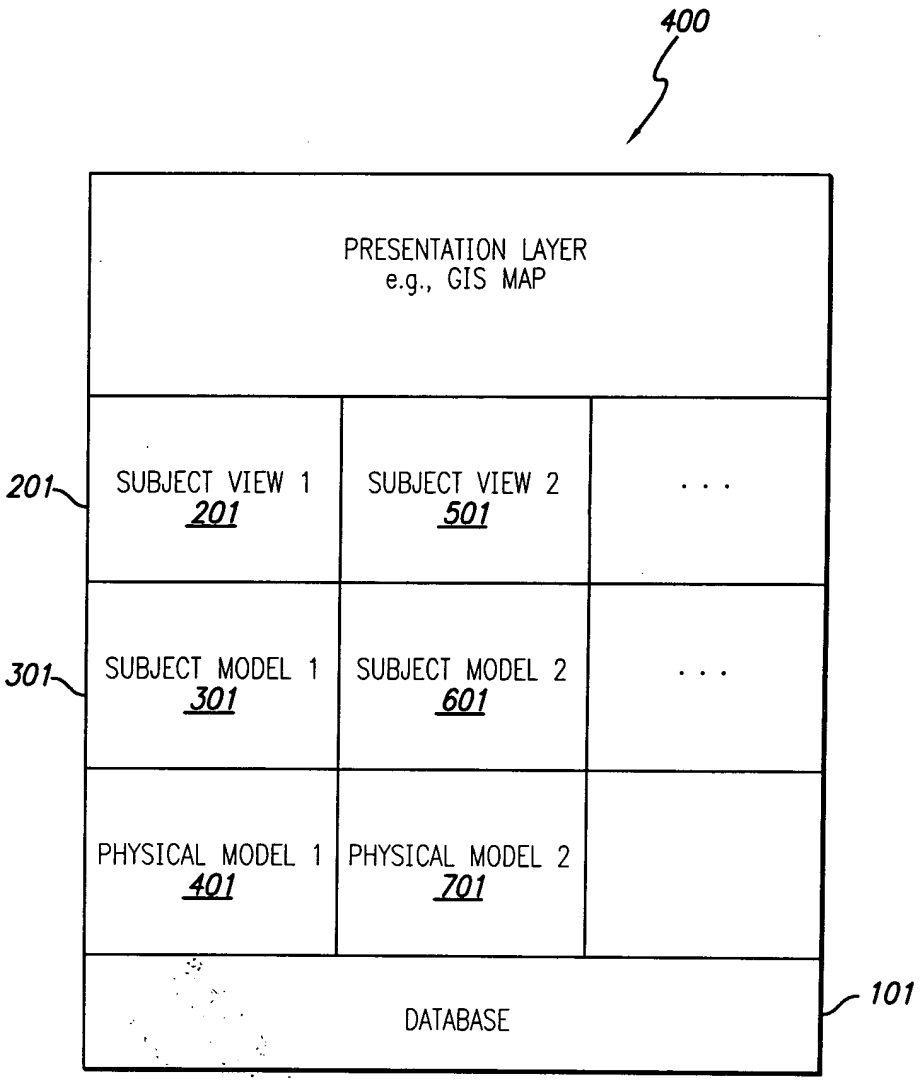

400
PRESENTATION LAYER
e.g., GIS MAP
201
SUBJECT VIEW 1
201
SUBJECT VIEW 2
501
. . .
301
SUBJECT MODEL 1
301
SUBJECT MODEL 2
601
. . .
PHYSICAL MODEL 1
401
PHYSICAL MODEL 2
701
DATABASE
101

FIG. 4A

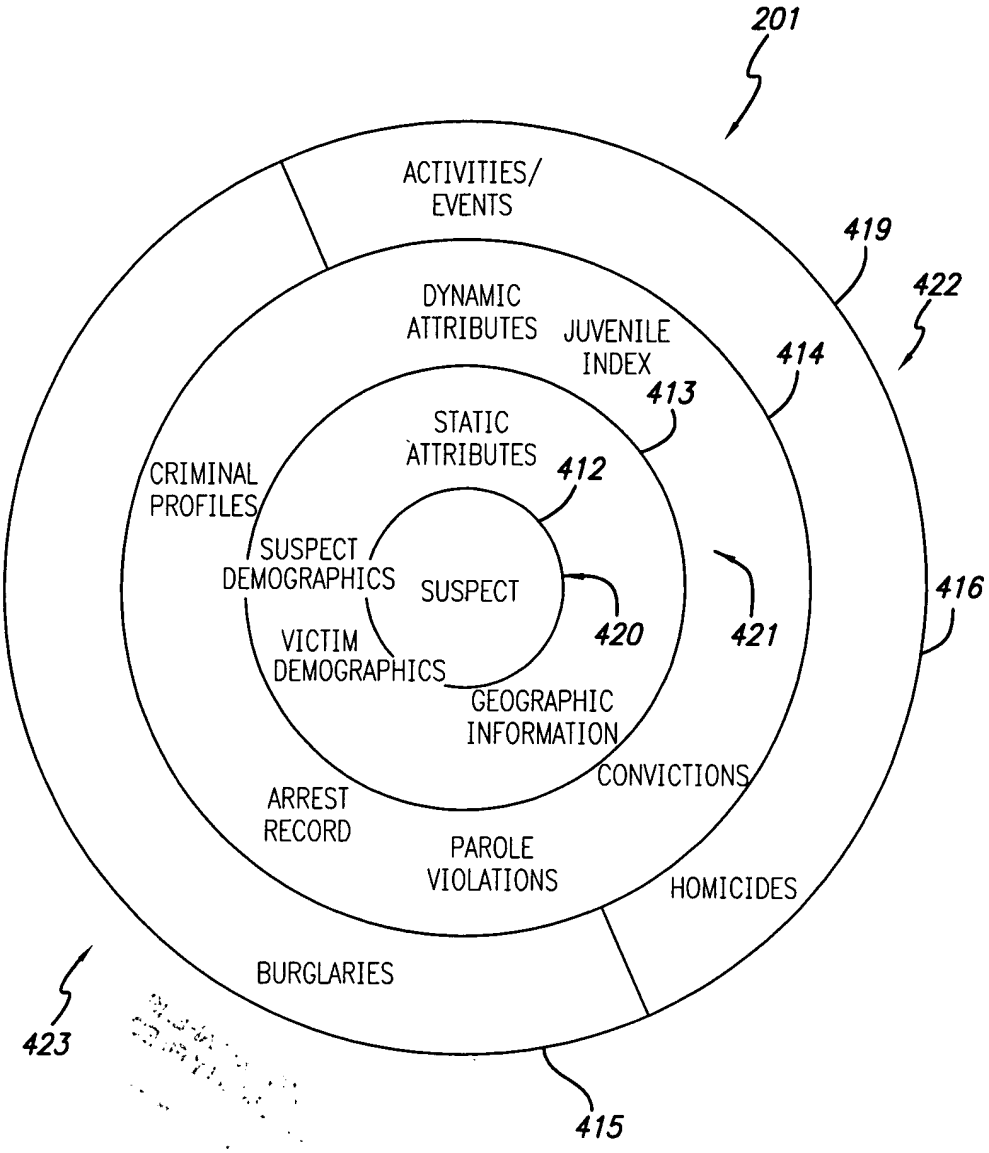

201
ACTIVITIES/
EVENTS
419
422
DYNAMIC
ATTRIBUTES
JUVENILE
INDEX
414
413
STATIC
ATTRIBUTES
412
CRIMINAL
PROFILES
SUSPECT
DEMOGRAPHICS
SUSPECT
420
421
416
VICTIM
DEMOGRAPHICS
GEOGRAPHIC
INFORMATION
CONVICTIONS
ARREST
RECORD
PAROLE
VIOLATIONS
HOMICIDES
BURGLARIES
423
415

FIG. 4B

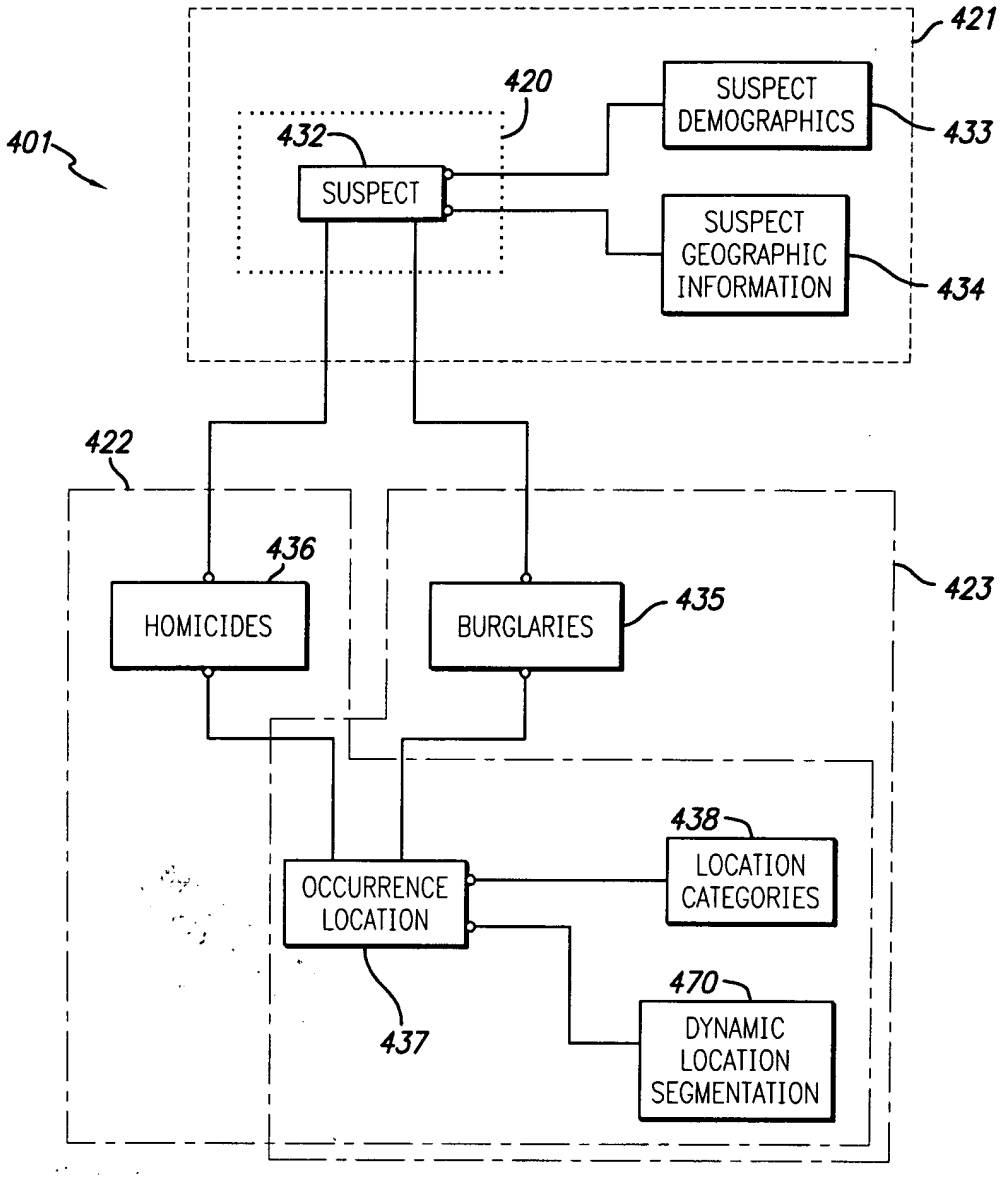

421
420
401
432
SUSPECT
SUSPECT DEMOGRAPHICS
433
SUSPECT GEOGRAPHIC INFORMATION
434
422
436
HOMICIDES
BURGLARIES
435
423
438
LOCATION CATEGORIES
OCCURRENCE LOCATION
437
470
DYNAMIC LOCATION SEGMENTATION

FIG. 4C

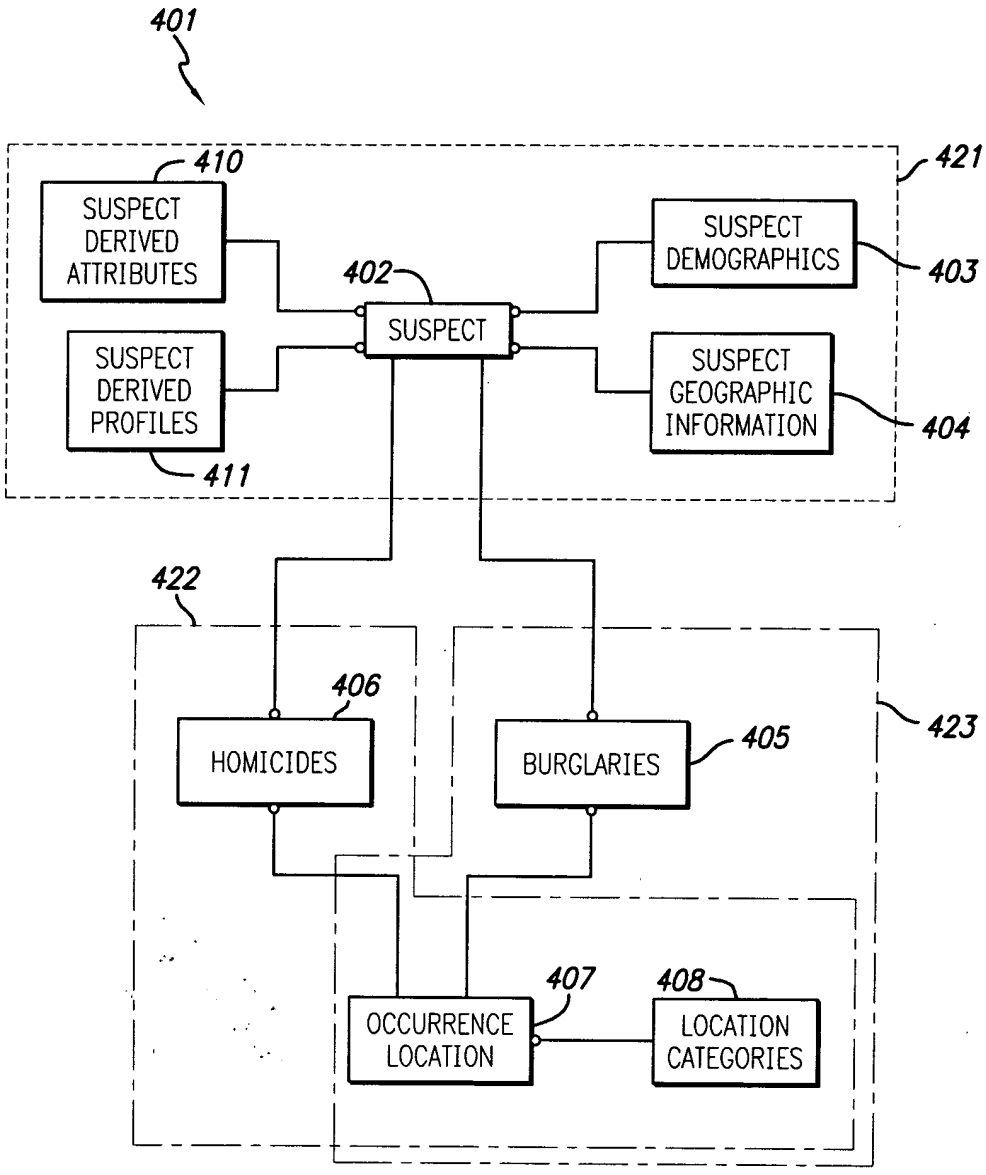

401
410
SUSPECT DERIVED ATTRIBUTES
SUSPECT DERIVED PROFILES
411
402
SUSPECT
SUSPECT DEMOGRAPHICS
403
SUSPECT GEOGRAPHIC INFORMATION
404
421
422
406
HOMICIDES
BURGLARIES
405
423
407
OCCURRENCE LOCATION
408
LOCATION CATEGORIES

FIG. 4D

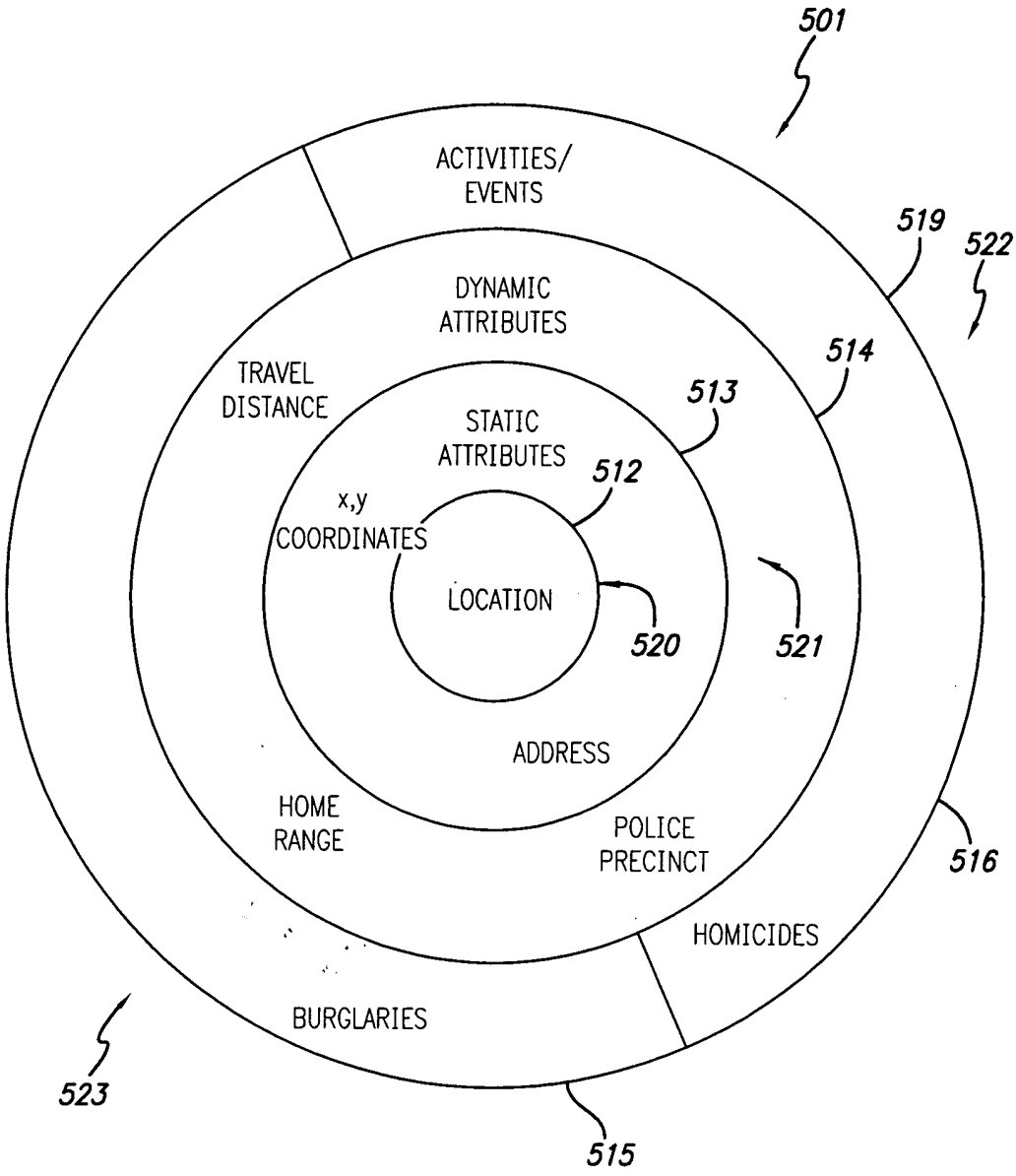

501
ACTIVITIES/
EVENTS
519
522
DYNAMIC
ATTRIBUTES
514
TRAVEL
DISTANCE
513
STATIC
ATTRIBUTES
512
x,y
COORDINATES
LOCATION
520
521
ADDRESS
HOME
RANGE
POLICE
PRECINCT
516
HOMICIDES
BURGLARIES
523
515

FIG. 5A

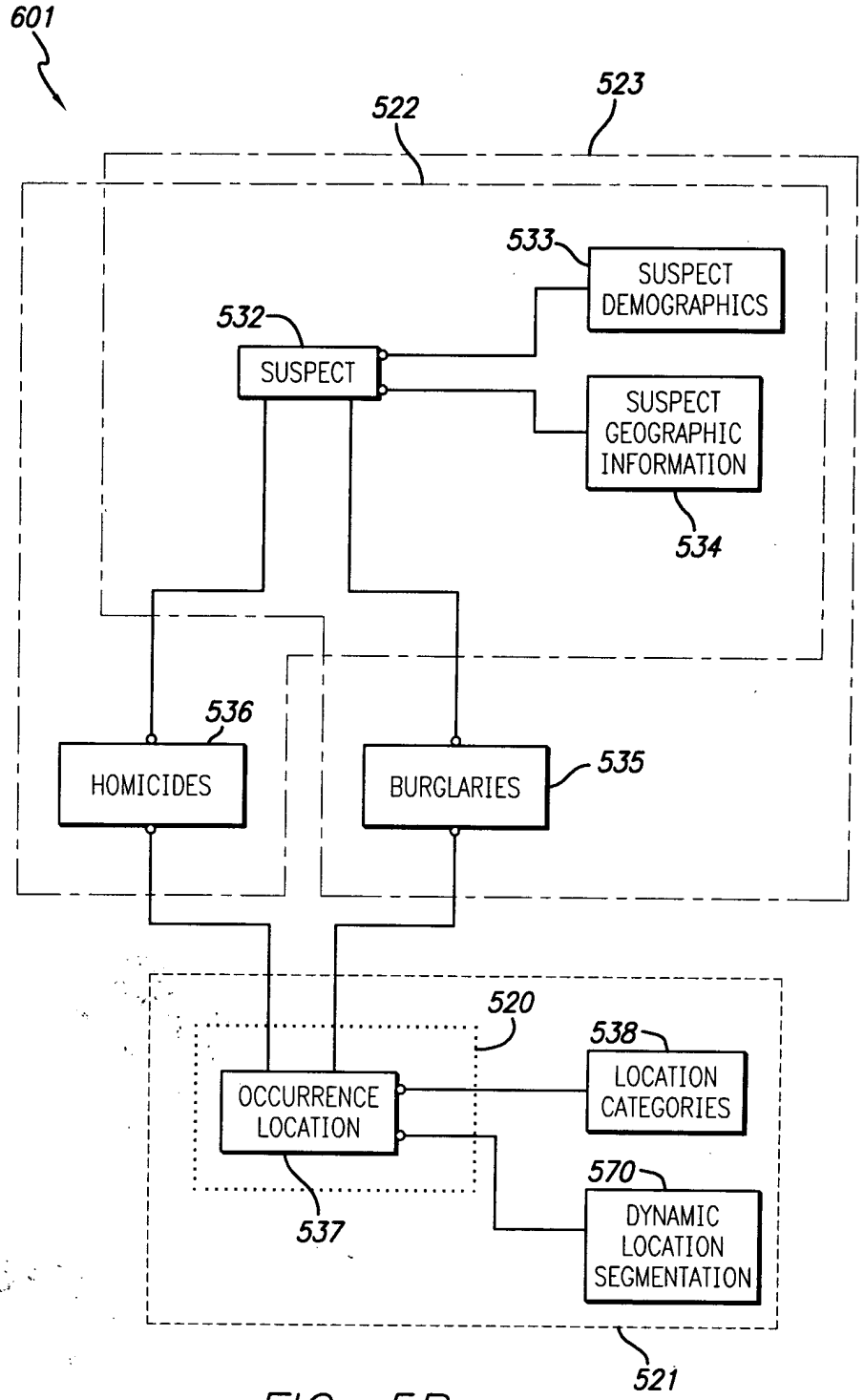

601
522
523
533
SUSPECT DEMOGRAPHICS
532
SUSPECT
SUSPECT GEOGRAPHIC INFORMATION
534
536
HOMICIDES
BURGLARIES
535
520
538
LOCATION CATEGORIES
OCCURRENCE LOCATION
570
DYNAMIC LOCATION SEGMENTATION
537
521

FIG. 5B

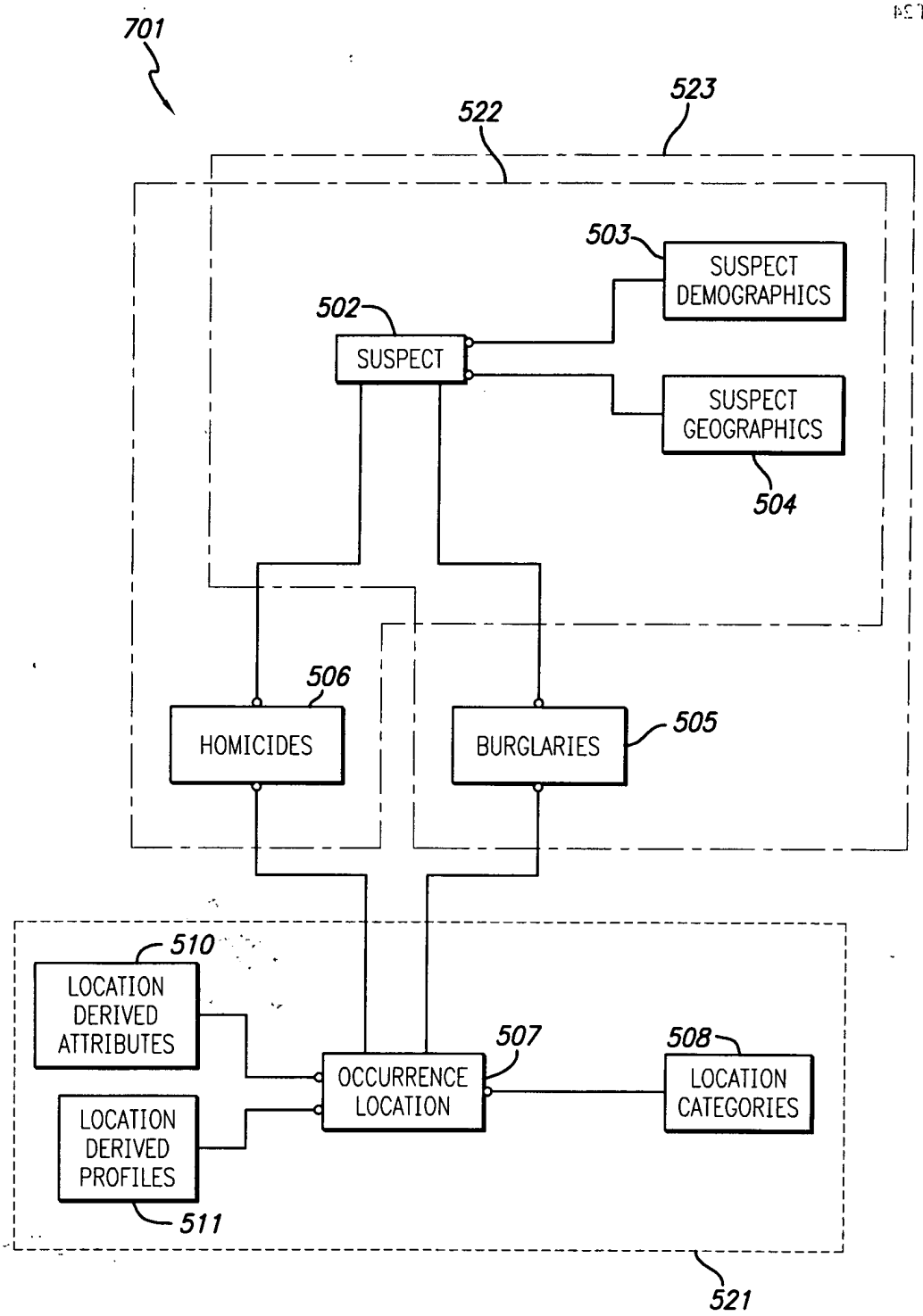

701
522
523
503
SUSPECT DEMOGRAPHICS
502
SUSPECT
SUSPECT GEOGRAPHICS
504
506
HOMICIDES
BURGLARIES
505
510
LOCATION DERIVED ATTRIBUTES
507
508
OCCURRENCE LOCATION
LOCATION CATEGORIES
LOCATION DERIVED PROFILES
511
521

FIG. 5C

FIG. 6A

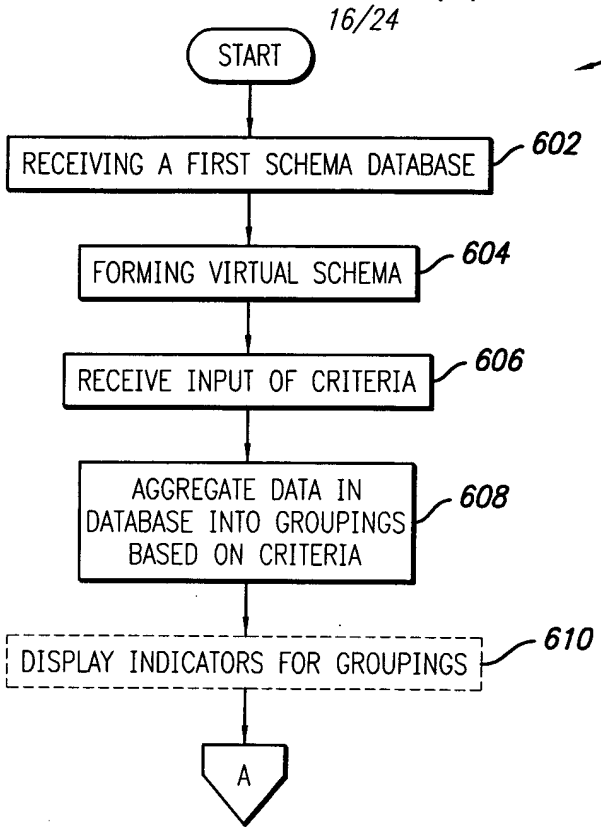

START
601
RECEIVING A FIRST SCHEMA DATABASE
602
FORMING VIRTUAL SCHEMA
604
RECEIVE INPUT OF CRITERIA
606
AGGREGATE DATA IN DATABASE INTO GROUPINGS BASED ON CRITERIA
608
DISPLAY INDICATORS FOR GROUPINGS
610
A

FIG. 6B

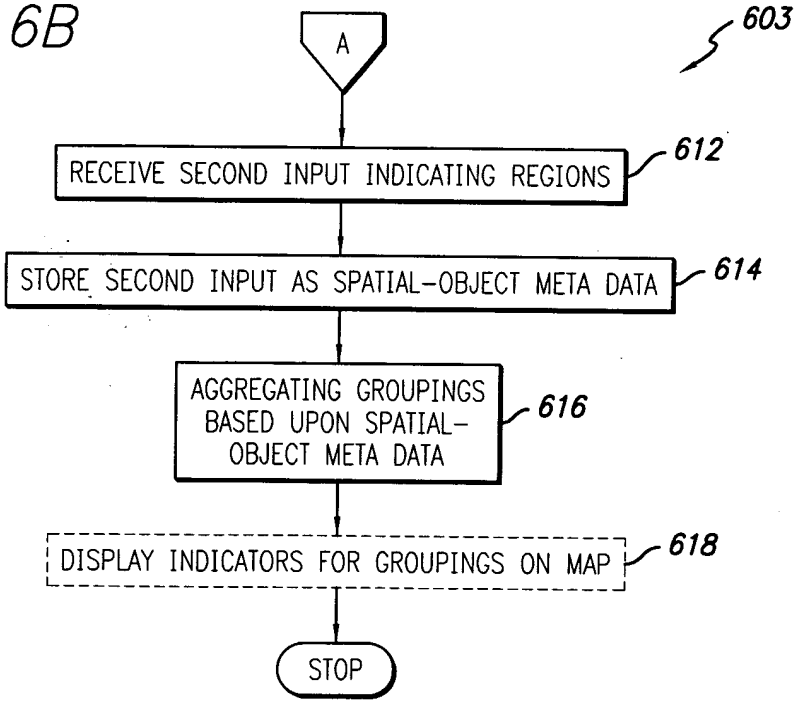

A
603
RECEIVE SECOND INPUT INDICATING REGIONS
612
STORE SECOND INPUT AS SPATIAL-OBJECT META DATA
614
AGGREGATING GROUPINGS BASED UPON SPATIAL-OBJECT META DATA
616
DISPLAY INDICATORS FOR GROUPINGS ON MAP
618
STOP

FIG. 6C

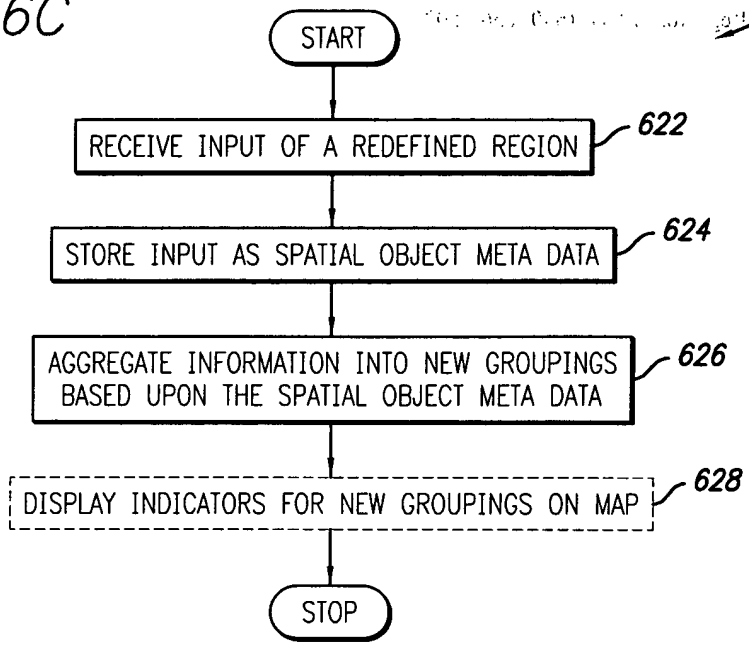

605
START
RECEIVE INPUT OF A REDEFINED REGION
622
STORE INPUT AS SPATIAL OBJECT META DATA
624
AGGREGATE INFORMATION INTO NEW GROUPINGS BASED UPON THE SPATIAL OBJECT META DATA
626
DISPLAY INDICATORS FOR NEW GROUPINGS ON MAP
628
STOP

FIG. 6D

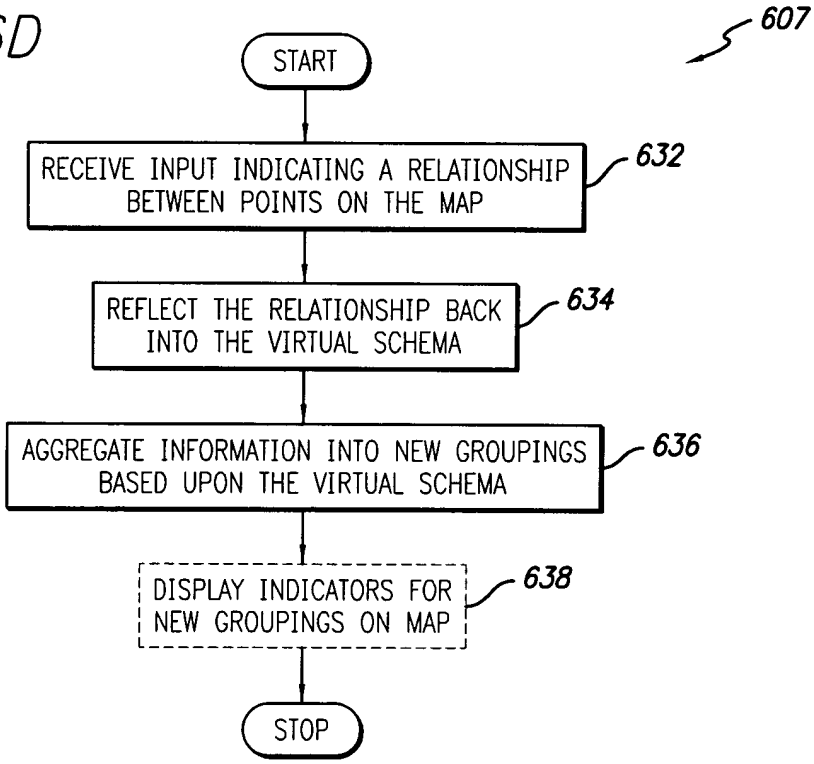
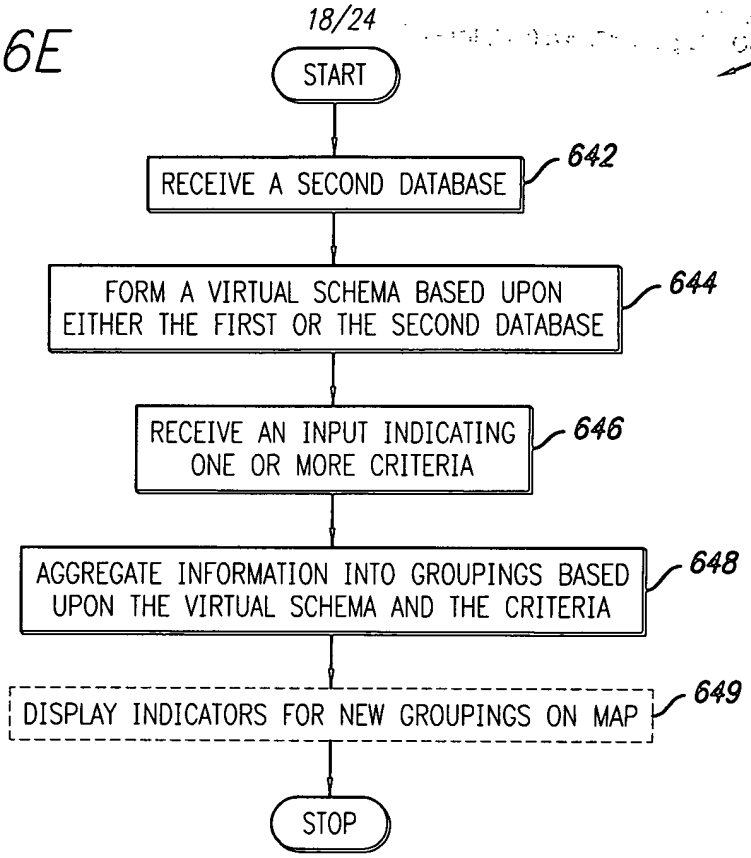

607
START
RECEIVE INPUT INDICATING A RELATIONSHIP BETWEEN POINTS ON THE MAP
632
REFLECT THE RELATIONSHIP BACK INTO THE VIRTUAL SCHEMA
634
AGGREGATE INFORMATION INTO NEW GROUPINGS BASED UPON THE VIRTUAL SCHEMA
636
DISPLAY INDICATORS FOR NEW GROUPINGS ON MAP
638
STOP

FIG. 6E


18/24
609
START
RECEIVE A SECOND DATABASE
642
FORM A VIRTUAL SCHEMA BASED UPON EITHER THE FIRST OR THE SECOND DATABASE
644
RECEIVE AN INPUT INDICATING ONE OR MORE CRITERIA
646
AGGREGATE INFORMATION INTO GROUPINGS BASED UPON THE VIRTUAL SCHEMA AND THE CRITERIA
648
DISPLAY INDICATORS FOR NEW GROUPINGS ON MAP
649
STOP

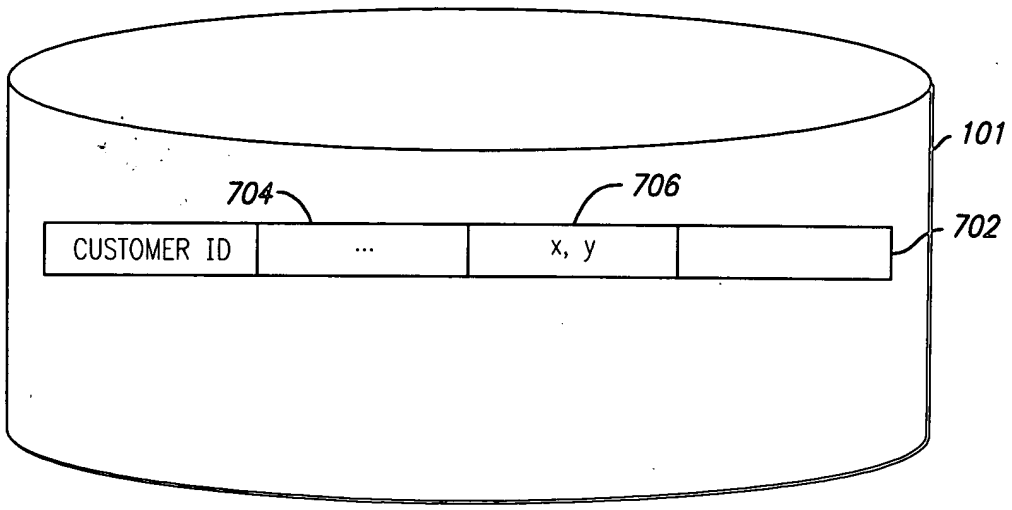

101
704
706
CUSTOMER ID
...
x, y
702

FIG. 7

TITLE: SPATIAL INTELLIGENCE SYSTEM AND METHOD
INVENTORS: LI-WEN CHEN AND VICTOR LUU
SERIAL NO.: 10/017,701

FIG. 8

802

Project 'oakland_crimes'–Design Centric Entity "locations" in Centric Entities' Group

Table Name: locations

Description: locations

Centric Group: PRIMARY

Set Properties

	Column Name	Data Type	Length	Precision	Scale	Allow Nulls	Default Value	Identity	Identity Seed	Identity Increment
	Community Beat	nvarchar	4	0	0	No		No		
	Patrol_Beats	nvarchar	10	0	0	Yes		No		
	Police_Districts	nvarchar	10	0	0	Yes		No		
	Police_Areas	nvarchar	10	0	0	Yes		No		
	Description	nvarchar	60	0	0	Yes		No		
	Latitude	nvarchar	10	0	0	Yes		No		
	Longitude	nvarchar	10	0	0	Yes		No		

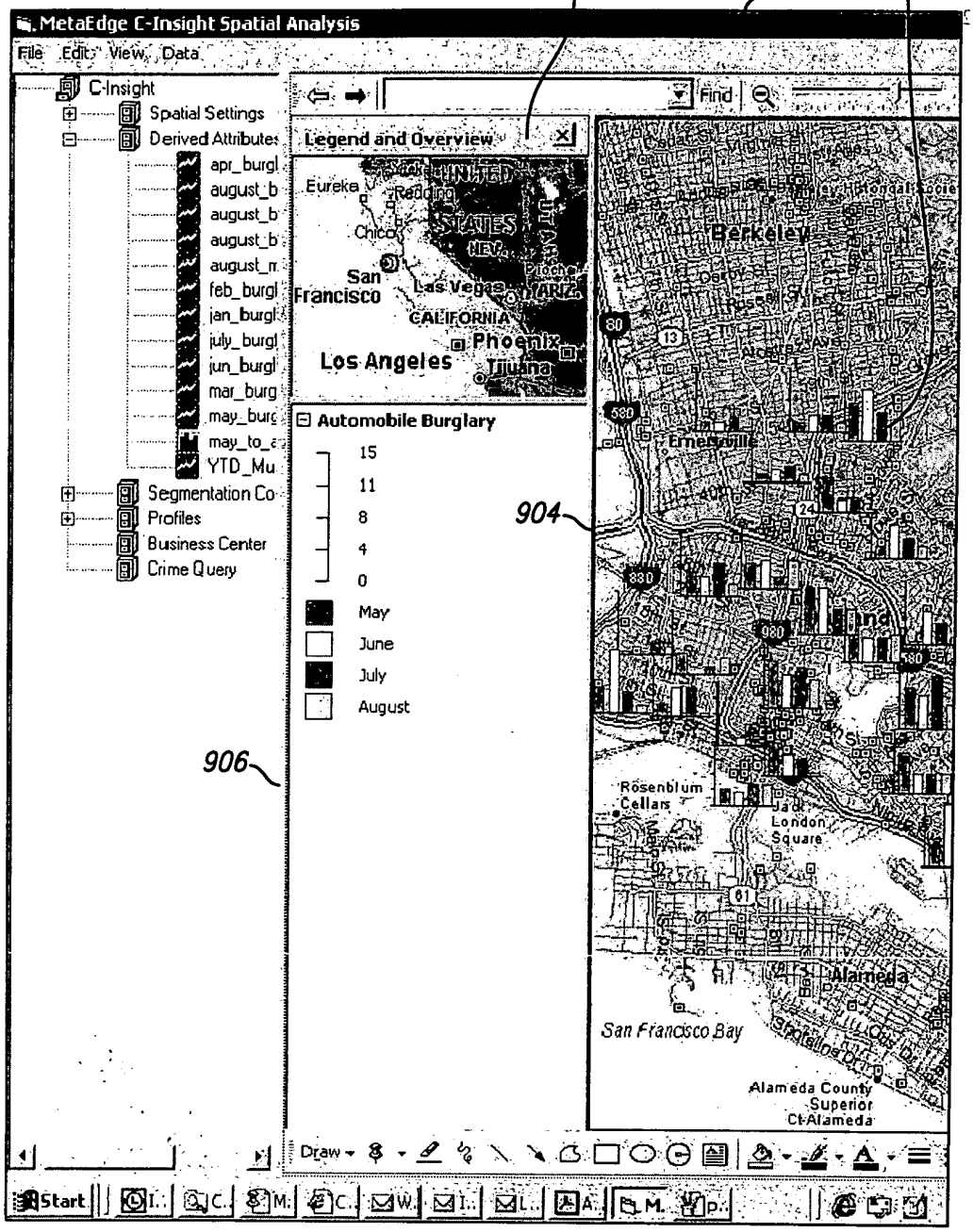

902
901
908
MetaEdge C-Insight Spatial Analysis
File Edit View Data
C-Insight
Spatial Settings
Derived Attributes
apr_burgl
august_b
august_b
august_b
august_n
feb_burgl
jan_burgl
july_burgl
jun_burgl
mar_burg
may_burg
may_to_
YTD_Mu
Segmentation Co
Profiles
Business Center
Crime Query
Legend and Overview
Eureka
Redding
Chico
San Francisco
Las Vegas
CALIFORNIA
Phoenix
Los Angeles
Tijuana
Automobile Burglary
15
11
8
4
0
May
June
July
August
904
906
Find
Berkeley
Emeryville
Rosenblum Cellars
London Square
Alameda
San Francisco Bay
Alameda County Superior Ct-Alameda
Draw
Start

FIG. 9A

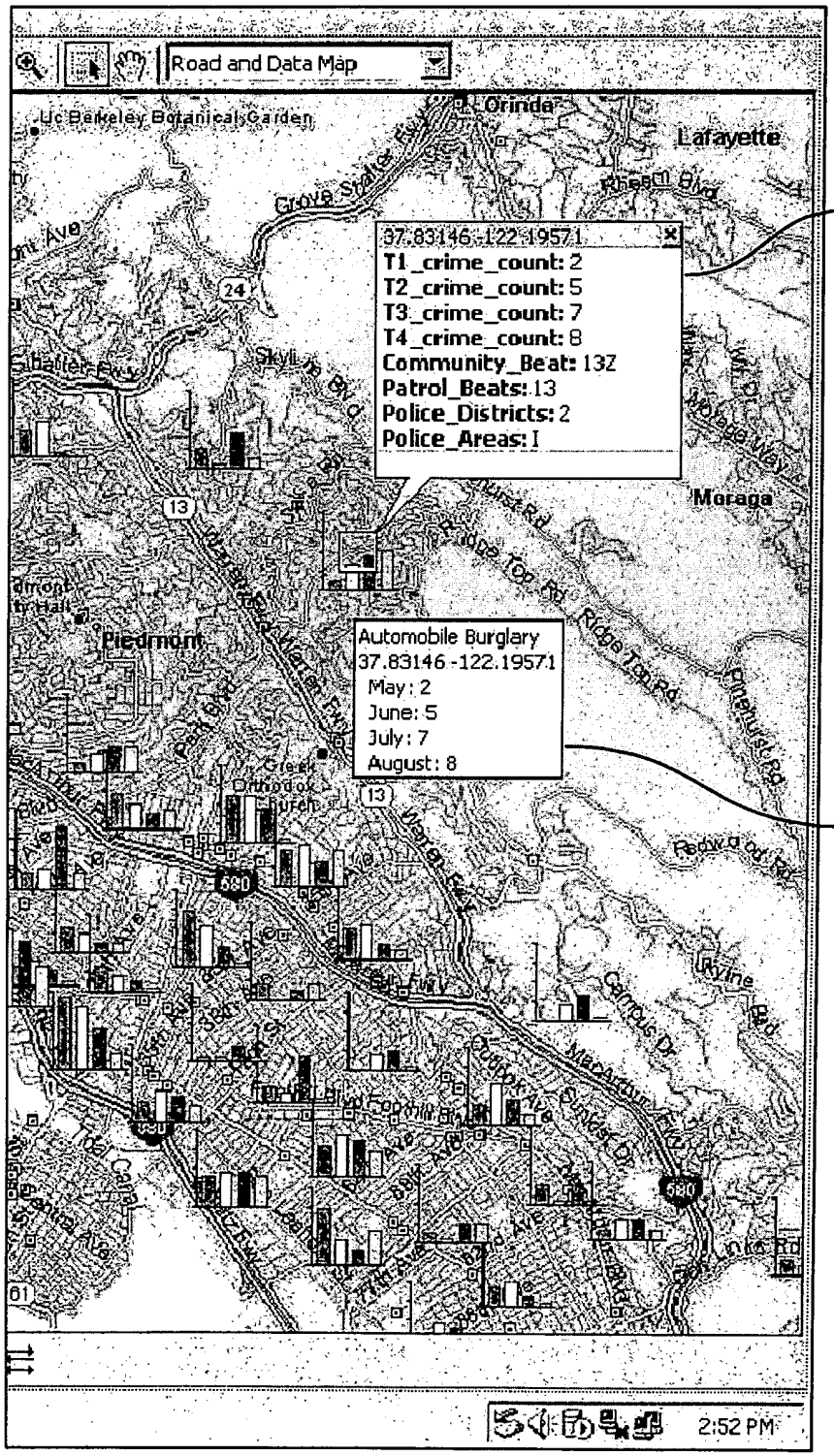

Road and Data Map
Orinda
Lafayette
Moraga
Piedmont
37.83146 -122.1957 1
T1_crime_count: 2
T2_crime_count: 5
T3_crime_count: 7
T4_crime_count: 8
Community_Beat: 13Z
Patrol_Beats: 13
Police_Districts: 2
Police_Areas: 1
Automobile Burglary
37.83146 -122.1957 1
May: 2
June: 5
July: 7
August: 8
910
912
2:52 PM

FIG. 9B

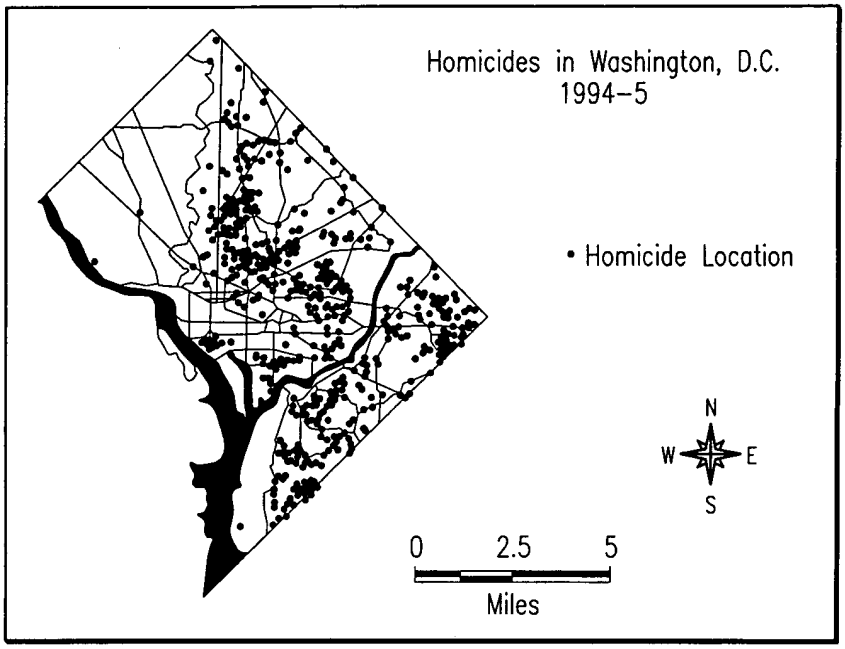

Homicides in Washington, D.C.
1994–5
• Homicide Location
N
W
E
S
0
2.5
5
Miles

FIG. 10

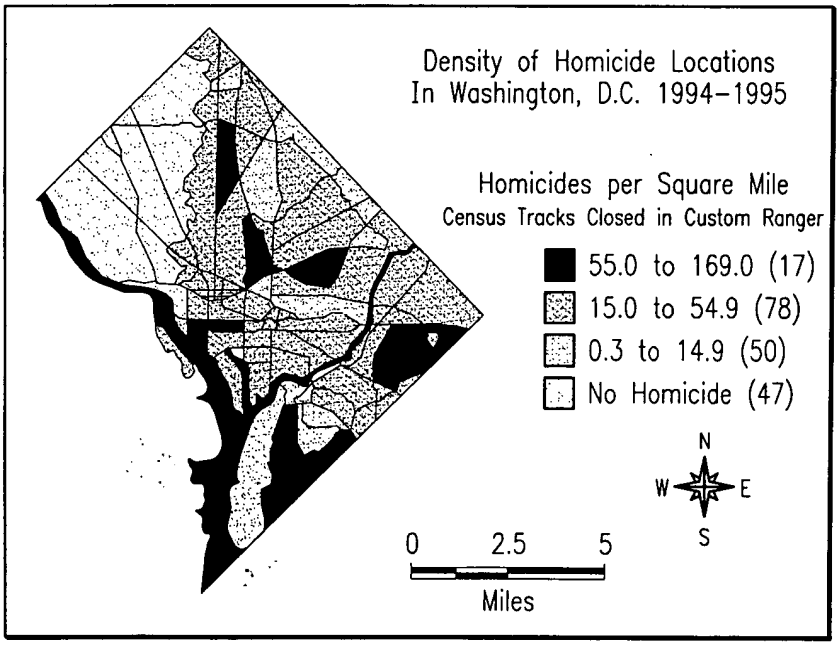

Density of Homicide Locations
In Washington, D.C. 1994–1995
Homicides per Square Mile
Census Tracks Closed in Custom Ranger
55.0 to 169.0 (17)
15.0 to 54.9 (78)
0.3 to 14.9 (50)
No Homicide (47)
N
W
E
S
0
2.5
5
Miles

FIG. 11

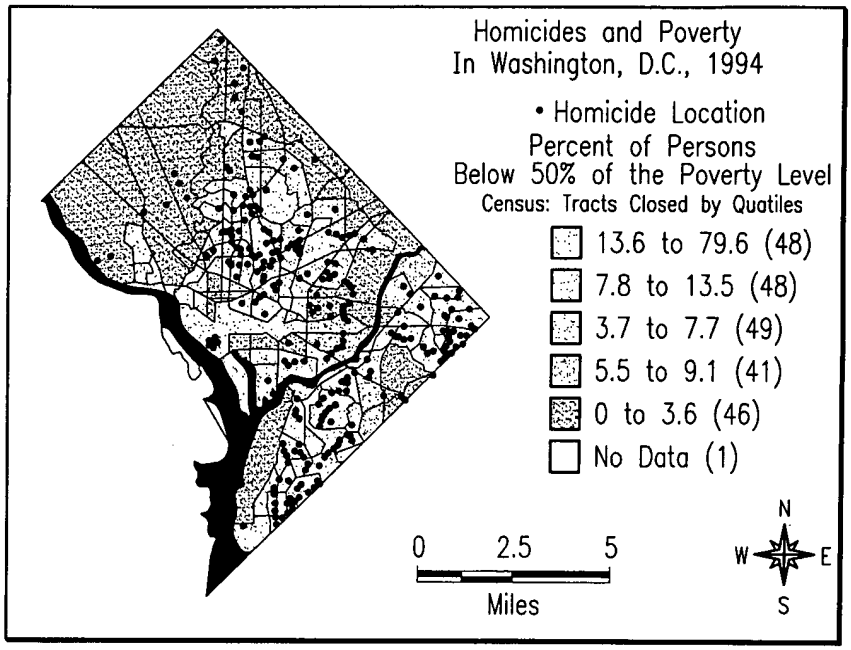

Homicides and Poverty
In Washington, D.C., 1994
• Homicide Location
Percent of Persons
Below 50% of the Poverty Level
Census: Tracts Closed by Quatiles
13.6 to 79.6 (48)
7.8 to 13.5 (48)
3.7 to 7.7 (49)
5.5 to 9.1 (41)
0 to 3.6 (46)
No Data (1)
0 2.5 5
Miles
N
W E
S

FIG. 12

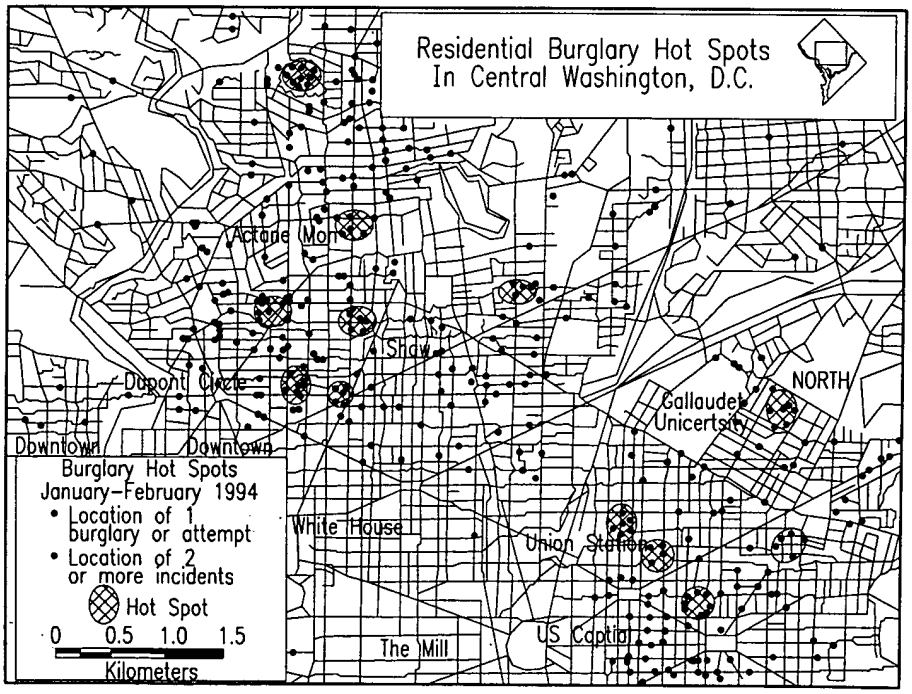
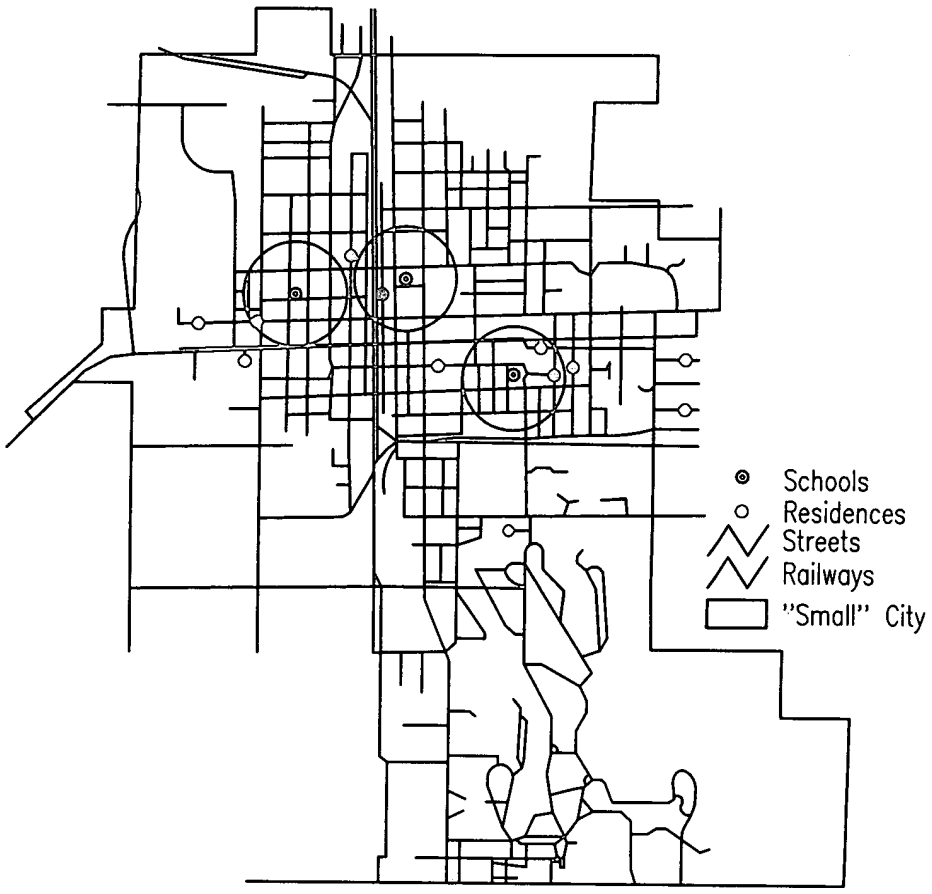

Residential Burglary Hot Spots
In Central Washington, D.C.
Adams Mor
Shaw
Dupont Circle
Downtown
Downtown
NORTH
Gallaudet
Unicertsity
White House
Union Station
The Mill
US Capital
Burglary Hot Spots
January–February 1994
• Location of 1 burglary or attempt
• Location of 2 or more incidents
Hot Spot
0 0.5 1.0 1.5
Kilometers

FIG. 13

REGISTERED CHILD SEX OFFENDER
REPRESENTATION "SMALL " CITY



SOURCE: FAIR COUNTY LAW ENFORCEMENT AGENCIES
NOTE: THE BUFFER CONTAINS 1000FT OF THE AREA

FIG. 14